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SYSTEM AND DEVICE FOR ENHANCED COLLECTION OF GOODS
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A system for enhanced collection of goods is provided. The goods such as food items are each stored at a discrete location within a storage area such as at particular locations on shelves of a supermarket. The system involves entering particulars of goods such as food items to be collected into a memory area and also storing goods identification and location information of all possible goods which could be collected in a further memory area. The system then requires comparing said particulars in the two memory areas to find matches and stores particulars of the matches. The system then processes the matches to provide an output which lists the goods in the order that they appear in the storage area. This, in turn, permits the goods to be collected in a sequential order as a collector passes sequentially through the storage area.

A device for permitting identification of correct goods selection is also provided. This device has a scanner whereby identification code of goods selected can be scanned and if a match is obtained from the list of goods, then an indication is provided to announce correct goods selection.

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COMPLETE SPECIFICATION
STANDARD PATENT

Applicant(s):

PETA GODENZI

Invention Title:

SYSTEM AND DEVICE FOR ENHANCED
COLLECTION OF GOODS

The following statement is a full description of this
invention, including the best method of performing it known
to me/us:

SYSTEM AND DEVICE FOR ENHANCED COLLECTION OF GOODS

Field of the Invention

5 This invention relates to a system and device for enhanced collection of goods and relates particularly, but not exclusively, to such where a variety of goods are stored at a discrete location within a storage area such as food items in a supermarket.

Description of Prior Art

10 Hitherto, it has been known to use computers to assist in the purchasing of goods. A typical example is where a person sees an advertisement for an item to be purchased and a modem is used to place an order from a customer who operates a PC. Whilst computer aided methods
15 have found favour, they do not address the problem of purchasing a variety of goods where each of the goods is stored at a discrete location within a storage area. A typical example is food items which are stored at a supermarket.

20 It is further known to provide a shopping list using a computer where the goods are all listed alphabetically. A problem with such listing is that as a customer walks through a supermarket store, for example, the order of the list does not correspond with the order in
25 which the goods are presented on the shelves in the supermarket. Thus, a person using such list often has to back-track to finally collect the required goods.

Object and Statement of the Invention

30 The present invention attempts to overcome some of the aforementioned difficulties.

Therefore in accordance with a broad aspect of

the present invention there may be provided a system for enhanced collection of a variety of goods where each is stored at a discrete location within a storage area,

said system comprising:

5 entering particulars of each of the goods required to be collected into a memory area to define a list of goods to be collected, storing goods identification and goods location information particulars into a further memory area,

10 comparing both said particulars in said memory area with said information in said further memory area to find matches,

 storing details of the matches,

 processing the details of the matches whereby an
15 output can be obtained of the goods to be collected in an order based on location in said storage area,

 obtaining said output,

 whereby the goods required to be collected can be collected in a sequential order as a collector passes
20 sequentially through said storage area.

 In accordance with a further aspect of the present invention there is provided a device to permit identification of correct goods selection in the above system,

25 said device comprising information input means, a central processing unit, a device memory, a device scanner and verification means interconnected so that information concerning goods to be collected as identified in said output can be inputted to said device memory and wherein as
30 a goods item is physically collected the item can be scanned by said device scanner to obtain particulars of that item so it can then be compared with said output for a match, and in the event of a match being found to cause said verification means to confirm a correct goods item
35 selection.

Brief Description of Drawings

In order that the invention can be more clearly ascertained examples of preferred embodiments will now be described with reference to the accompanying drawings, wherein:

Figure 1 is a block schematic diagram of an example of suitable hardware for implementing the system;

Figure 2 is a software flow diagram showing the software algorithm functionality used in the example shown in Figure 1;

Figure 3 shows a block schematic circuit diagram of an example of an electronic device which can be used as an aid to assist identification of correct goods selection/collection from the shopping list;

Figure 4 is a flow diagram of algorithm functionality of software for use with the device of Figure 3;

Figures 5(a), (b) and (c) show flow diagrams of further algorithm functionality; and

Figures 6(a) and (b) show flow diagrams of further algorithm functionality.

Detailed Description of Preferred Examples

Referring firstly to Figure 1, there is shown a central processing unit (CPU) 1 interconnected with a keyboard 3, a monitor 5, and a memory 7 comprising memory area 9, further memory area 11 and matches 13. The memory area 9, further memory area 11 and matches 13 may be software memory if desired. The CPU 1 is also connected with a floppy disc drive 15 and a printer 17. The components so far described can be provided in a PC environment. Software is loaded within the PC and is operated in a functional manner to permit a shopping list to be obtained where the goods required to be collected can be collected in a sequential order as a collector passes sequentially through a storage area. In other words, if food items were to be purchased from a supermarket, for

example, then a shopping list can be provided where the goods to be purchased/collected are listed in the order that the goods appear on the shelves in the supermarket.

One example of how information relating to the shopping list can be produced is set out below. A supermarket may provide, free to customers, a floppy disc which is current for, say, one week listing all the goods in the supermarket store and an identification as to where those goods are provided in the store. The customer can obtain that floppy disc and insert it in the floppy disc drive 15 of the PC. In this way, a PC software package can be loaded with data representative of the goods within the supermarket and the particular location in the store shelves. A customer can then enter into the software package, via the keyboard 3, the names of the goods to be purchased. These may be, for example, cheese/kraft/250g/sliced. Alternatively, the information of the goods in the store may be displayed on the monitor screen 5 in alphabetical order and the purchaser can scroll the screen to tag or otherwise identify particular goods to be purchased. Thus, a variety of goods to be purchased can be entered into the PC and stored in a memory area 9 in the memory 7. The software may permit the display on the monitor screen 5 to show dairy goods in one colour display, ie yellow characters, meat in a different colour such as red, and vegetables in a further colour, such as green. This will assist identification of the goods on the screen and aid selection. The goods within the store, as extracted from the floppy disc, can be stored in the further memory area 11. When all the goods to be purchased have been entered, the PC can be activated via the software to compare the listing of goods in memory area 9 with the listing of the goods in the further memory area 11 to define matches. The matches can then be stored in a further memory area - matches 13. The software package can then further be implemented to sequentially list the goods

to be collected from those in the matches 13 in the necessary order in a shopping list so the goods can be collected sequentially as a collector passes sequentially throughout the supermarket. The computer can then either display the shopping list on the monitor 5 or alternatively print the shopping list via the printer 17.

Figure 2 shows the algorithm functionality of the software. This software may come on the floppy disc together with the listing of the goods in the supermarket or it may be provided on a separate disc or other source.

In order to enhance input of data from persons who are not particularly computer literate, a hand scanner device 19 may be provided connected with the CPU. This is shown in Figure 1. The hand scanner 19 may be arranged to scan a bar code on existing goods. Thus, as a person finishes the contents of particular goods, the bar code which is now standard on all goods in a supermarket, may be scanned. The software may be arranged to allow input of one of the items to be purchased and then the computer closed down. The computer can be again re-activated when necessary to enter further goods. In this way, a list can be built up of goods to be purchased/collected. At the required time when the goods are to be actually purchased, the software can be implemented to produce the output via the monitor 5 or the printer 17.

When a hand scanner 19 is invoked, supermarket chains, for example, may advertise daily spot specials and these may be in newspapers. The hand scanner 19 can be arranged to scan a code printed in the newspapers to identify the particular goods to be purchased. This code may be a unique code in alpha/numerical form or it may be a bar code.

The software in the PC may then be arranged to search through the list in its memory of the particular store where shopping is to be undertaken to determine a "match" and to obtain the location information.

Figure 1 shows a further variation of the system where a modem 21 is connected with the CPU 1 of the PC. The modem 21 is arranged to make connection with a further modem 23 at a supermarket store, for example, and to
5 connect the PC with a database 25 in the store. Details of the particular goods in the store and their location can then be downloaded from the database 25 in the store to the PC. In this way, the use of the floppy disc for entering information concerning the possible goods in the store can
10 be dispensed with or supplemented.

If a modem is used in the system then it is possible that the shopping list can be relayed via the modem to the store and held at the store. In this way, a person can collect their shopping list at the store by
15 obtaining a printout of their shopping list at the time when they enter the store. Alternatively, the store may arrange for personnel to actually collect the goods in the shopping list and have them awaiting collection at the store or have them home delivered. The shopping list would
20 be arranged to produce the listing in the order in which the goods appear in the shelves of the store. In this way, the store assistants' time collecting the goods can be minimised.

Payment for the goods may be made by any
25 convenient means, such as by automatic credit card or disbursement or by cash.

The same system and method of scanning codes can be implemented for catalogue shopping. A single run multi-vendor catalogue may be arranged with codes for each item
30 in the shopping list. Such catalogue may be for many local and/or international stores. By using this system, people who make items for cottage industries, as an example, and home-based industries would appreciate being exposed to a wide range of buyers. This, in turn, would enable a home
35 purchaser to access a wide range and variety of goods which logistically would not be available to them simply because,

for example, individual stores' or multiple smaller catalogues' listings could not be stored in the home.

Referring now to Figure 3 there is shown an electronic device 27 which can be fastened to a shopping trolley to aid in selection of the required goods. The device 27 comprises a central processing unit CPU 29, a verification means which includes display 31 which may conveniently comprise an LCD type display and a sound transducer 33 (such as a piezo sound transducer), a memory 35, a hand scanner such as a pen type scanner 37, and information input means which may comprise an I/O input/output port 39. Typically the port 39 can comprise an IR (infra-red) port to the CPU 29. It may alternatively comprise a floppy disc drive or some other input/output device.

The device is typically powered from a battery source which can conveniently be a rechargeable battery source. The customer which enters a store, such as a supermarket, brings a floppy disc listing all the goods required to be purchased. This disc is inserted into a floppy disc reader which may be a central floppy disc reader at a computer at the storage area for shopping trolleys in the supermarket. The listing may then be transferred via an IR transmitter device from the floppy disc to the input/output port 39 on the device 27 so as to transfer information concerning the goods on the listing through the CPU to be stored in memory 35. Alternatively, the floppy disc may be inserted into a floppy disc input/output device which may be provided in the device as an equivalent to the input/output port 39. Alternatively, the customer may bring its own pre-printed shopping list produced from its computer, listing the goods in the order in which they appear in the supermarket shelves. This shopping list can then be scanned by a suitable scanner connected to the supermarket store computer and transferred via the I/O port 39, such as by an infra-red transmission

system so that the information concerning the goods to be purchased is passed through the CPU 39 and held in the memory 35. The shopping list can then be clipped to a clip-board also provided on the supermarket trolley. The customer can then proceed around the isles of the supermarket and pick-up the goods sequentially in the order in which they appear on the shopping list (also in the same order in which they appear in the shelves of the supermarket). As the goods are picked up, the bar code on the goods can be scanned by the hand scanner 37 which will, in turn, operate through the CPU and a suitable program to determine if the goods which have been selected match the goods which are required to be purchased. Once the bar code is scanned on the goods to be purchased a display can be provided on the display 31 which word describes the goods and the cost price. If the goods are correct, the sound transducer 33 may sound an identifiable short beep which will signify to the customer that correct goods have been selected. If the goods selected are incorrect then the sound transducer 33 may sound a different identifiable beep, such as an extended beep, which will signify to the customer that the wrong goods have been selected. In this way, the customer can progress through the shopping list to collect all the goods required in the shopping list.

Figure 4 shows the algorithm functionality of the software for use in the device 27 shown in Figure 3 after goods information has been entered into the memory 35.

Figures 5(a), 5(b) and 5(c) show the algorithm steps where the customer has produced a goods list on a floppy disc and taken that floppy disc to a store such as a supermarket. In Figure 5(a) the initial step is to determine if the customer's goods are to be provided on a listing either locally at the supermarket store via the scanned shopping list at the supermarket store or from a floppy disc. Alternatively, if a remote order is to be made by way of use of the modem as described in relation to

Figure 1, for example, then the appropriate path is taken. The remainder of the steps of Figures 5(a), 5(b), and 5(c) appear self-explanatory.

Figures 6(a) and 6(b) show the algorithm
5 functionality of software where a customer can retrieve a list of goods held in a store and their location, either remotely via a modem or locally at the store. The list of goods is referred to as eMi. The information is then stored in memory. The required goods can be selected or
10 tagged, and/or identified by use of a hand scanner. A shopping list is then compiled which is subsequently confirmed. Figure 6(b) shows that the required customer's goods to be purchased are then compared against the eMi for matches and then a shopping list is produced showing the
15 goods in the required order on the shelves in the store. The algorithm shows a decision step of producing a hard copy shopping list or an electronic shopping list. It also shows the option of transferring the shopping list electronically to either a floppy disc or to the store
20 database. It also shows self-service selection or home delivery selection.

The actual software programs can be written by any skilled programmer. Accordingly, such software has not been detailed further than the algorithm functional flow
25 diagrams herein.

Modifications may be made to the present invention as would be apparent to persons skilled in the computer and/or retailing arts.

As an example of one modification, the print-out
30 of the shopping list with the goods in the order in which they appear on the shelves can also include a bar code print-out next to each of the goods. In this way when the shopping list is clipped to a clip board on the shopping trolley, the bar code scanner 37 of the electronic device
35 27 of Figure 3 which is attached to the shopping trolley can scan the bar code next to the goods to be purchased in

a sequential manner. In this way each goods item can be scanned and held in memory 35 as a single item stored in memory. When the goods item is located on the shelves by the customer, its bar code can be scanned and if a match is made the customer knows the correct item has been selected. The next goods item on the list can then be scanned and the process repeated.

The I/O port 39 can be arranged to permit information concerning goods selected during the shopping to be outputted at the completion of shopping. In this way a supermarket store, for example, can extract data relating to the goods purchased to, in turn, permit for example rapid totalling of the cost of goods selected or to provide stock control or statistical information.

As a further modification, the device 27 may be arranged for its display 31 to provide a running total of the purchase price of all the goods selected.

These and other modifications may be made without departing from the ambit of the invention, the nature of which is to be determined from the foregoing description.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A system for enhanced collection of a variety of goods where each is stored at a discrete location within a storage area,

5 said system comprising:
 entering particulars of each of the goods
 required to be collected into a memory area to define a
 list of goods to be collected, storing goods identification
 and goods location information particulars into a further
10 memory area,

 comparing both said particulars in said memory
 area with said information in said further memory area to
 find matches,

 storing details of the matches,
15 processing the details of the matches whereby an
 output can be obtained of the goods to be collected in an
 order based on location in said storage area,

 obtaining said output,
 whereby the goods required to be collected can be
20 collected in a sequential order as a collector passes
 sequentially through said storage area.

2. A system as claimed in claim 1 comprising using a
 personal computer, as said memory area, said further
 memory, said comparing, said storing, said processing and
25 said output.

3. A system as claimed in claim 2 wherein said
 computer receives said goods identification and goods
 location information for said storing via a modem connected
 therewith and via a telephone network connected with a
30 further computer system at said storage area or via a
 floppy disc containing said information provided from said
 storage area.

4. A system as claimed in claim 1, claim 2 or claim
 3, wherein there is provided a scanner for entering
35 particulars of each of the goods to be selected into said
 memory area.

5. A device to permit identification of correct goods selection in the system of claim 1,

said device comprising information input means, a central processing unit, a device memory, a device scanner and verification means interconnected so that information concerning goods to be collected as identified in said output can be inputted to said device memory and wherein as a goods item is physically collected the item can be scanned by said device scanner to obtain particulars of that item so it can then be compared with said output for a match, and in the event of a match being found to cause said verification means to confirm a correct goods item selection.

6. A device as claimed in claim 5, wherein said information input means has an input port where data particulars of said output can be inputted to permit storage in said device memory.

7. A device as claimed in claim 5 or claim 6, wherein said data particulars of said output can be inputted to permit storage in said memory area also via said device scanner by said device scanner scanning a printed list of goods to be collected produced from said output.

8. A device as claimed in claim 4, claim 5 or claim 6 wherein said scanner and said device scanner are each bar code scanners.

9. A device as claimed in claim 6 wherein said input port is an infra-red input port adapted to receive goods identification particulars via an infra-red link.

10. A device as claimed in claim 5, claim 6 or claim 7 wherein said device has an output port where information concerning verified goods selected can be outputted for further processing.

11. A device as claimed in claim 5, claim 6 or claim 7 wherein said verification means comprises a sound reproducing means which provides one identifiable sound for

correct goods selection and a different identifiable sound for incorrect goods selection.

12. A data storage medium for use with a system of claim 1, said data storage medium containing program
5 instructions to permit goods identification and goods location information to be stored into said further memory area, and to permit a list of goods to be collected to be stored in said memory area, and further comprising program instruction to compare both said particulars to find
10 matches, and to then permit storage of said matches, and to then process those matches to produce an output where the goods to be collected are in an order based on location in said storage area.

DATED THIS 21ST DAY OF MARCH 1996

15 PETA GODENZI

By Its Patent Attorneys:

GRIFFITH HACK & CO.,

Fellows Institute of Patent
Attorneys of Australia

ABSTRACT

A system for enhanced collection of goods is provided. The goods such as food items are each stored at a discrete location within a storage area such as at particular locations on shelves of a supermarket. The system involves entering particulars of goods such as food items to be collected into a memory area and also storing goods identification and location information of all possible goods which could be collected in a further memory area. The system then requires comparing said particulars in the two memory areas to find matches and stores particulars of the matches. The system then processes the matches to provide an output which lists the goods in the order that they appear in the storage area. This, in turn, permits the goods to be collected in a sequential order as a collector passes sequentially through the storage area.

A device for permitting identification of correct goods selection is also provided. This device has a scanner whereby identification code of goods selected can be scanned and if a match is obtained from the list of goods, then an indication is provided to announce correct goods selection.

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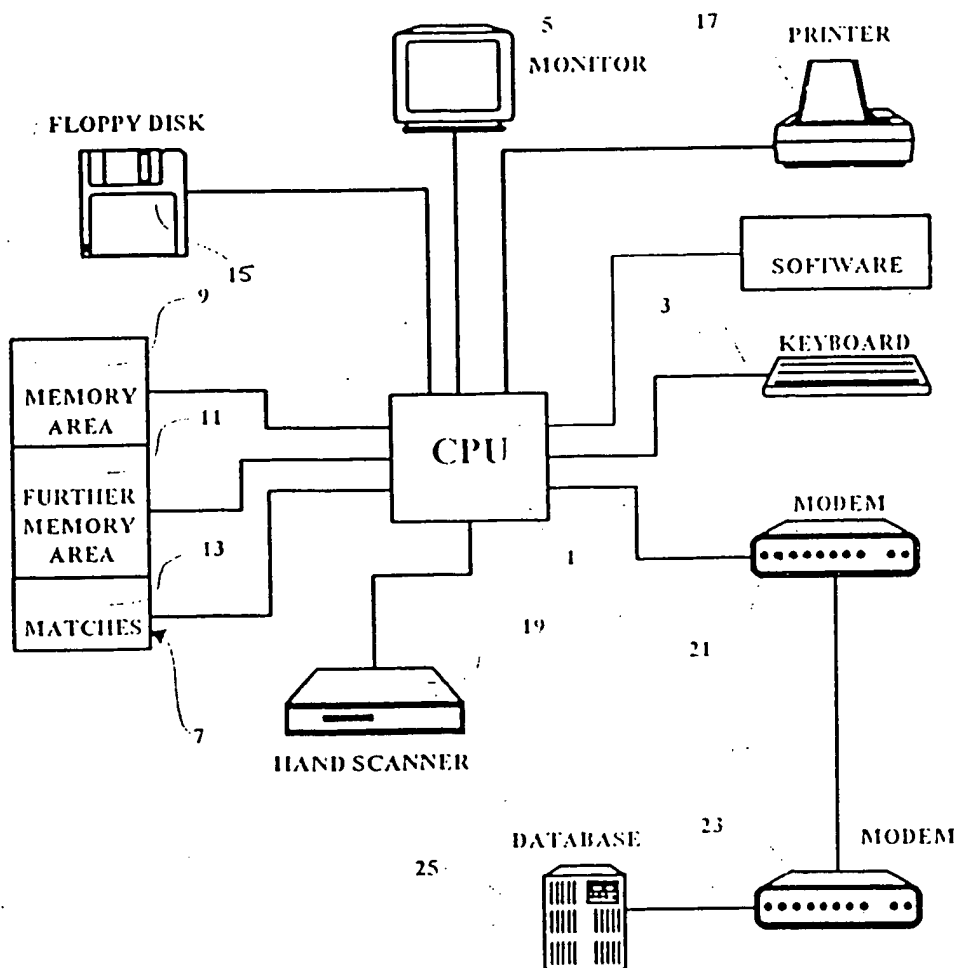


Fig 1

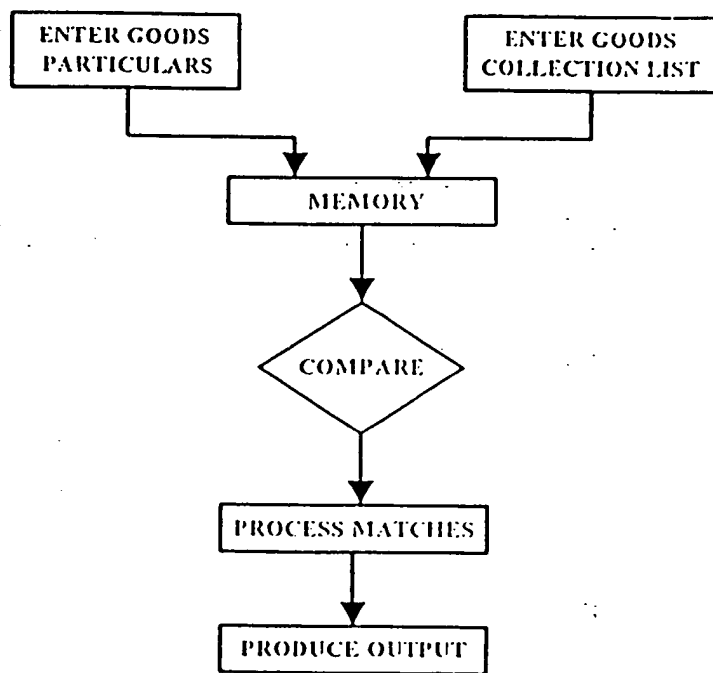


Fig 2

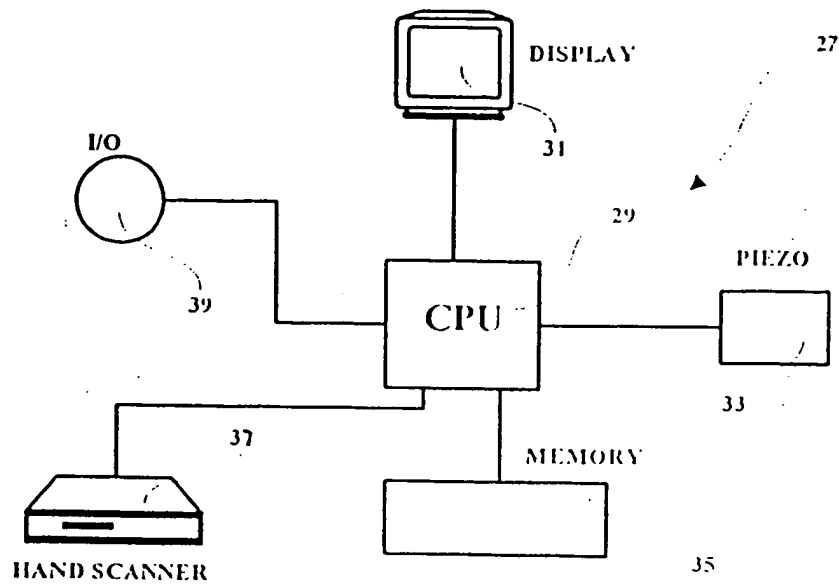


Fig 3

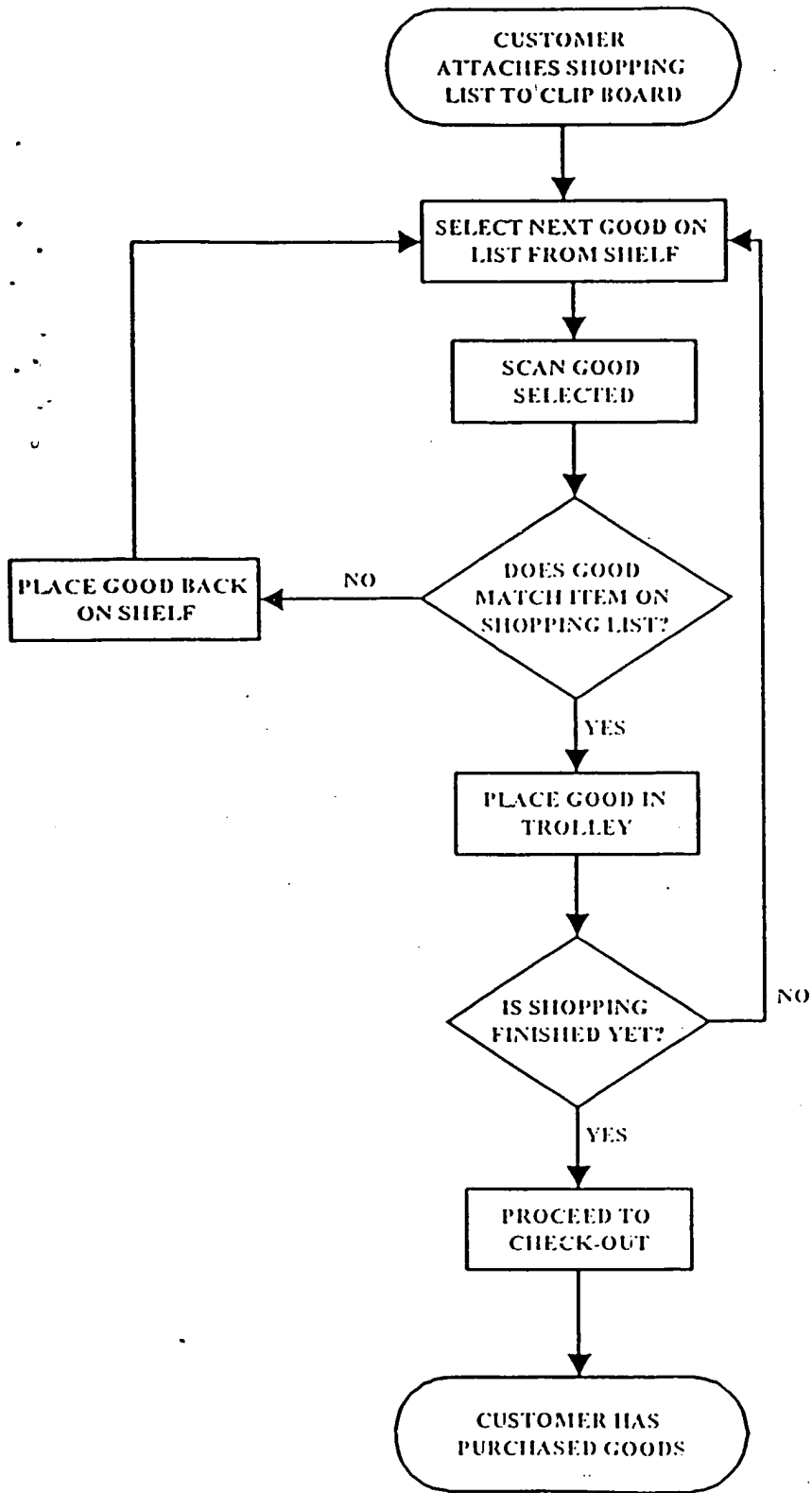


Fig 4

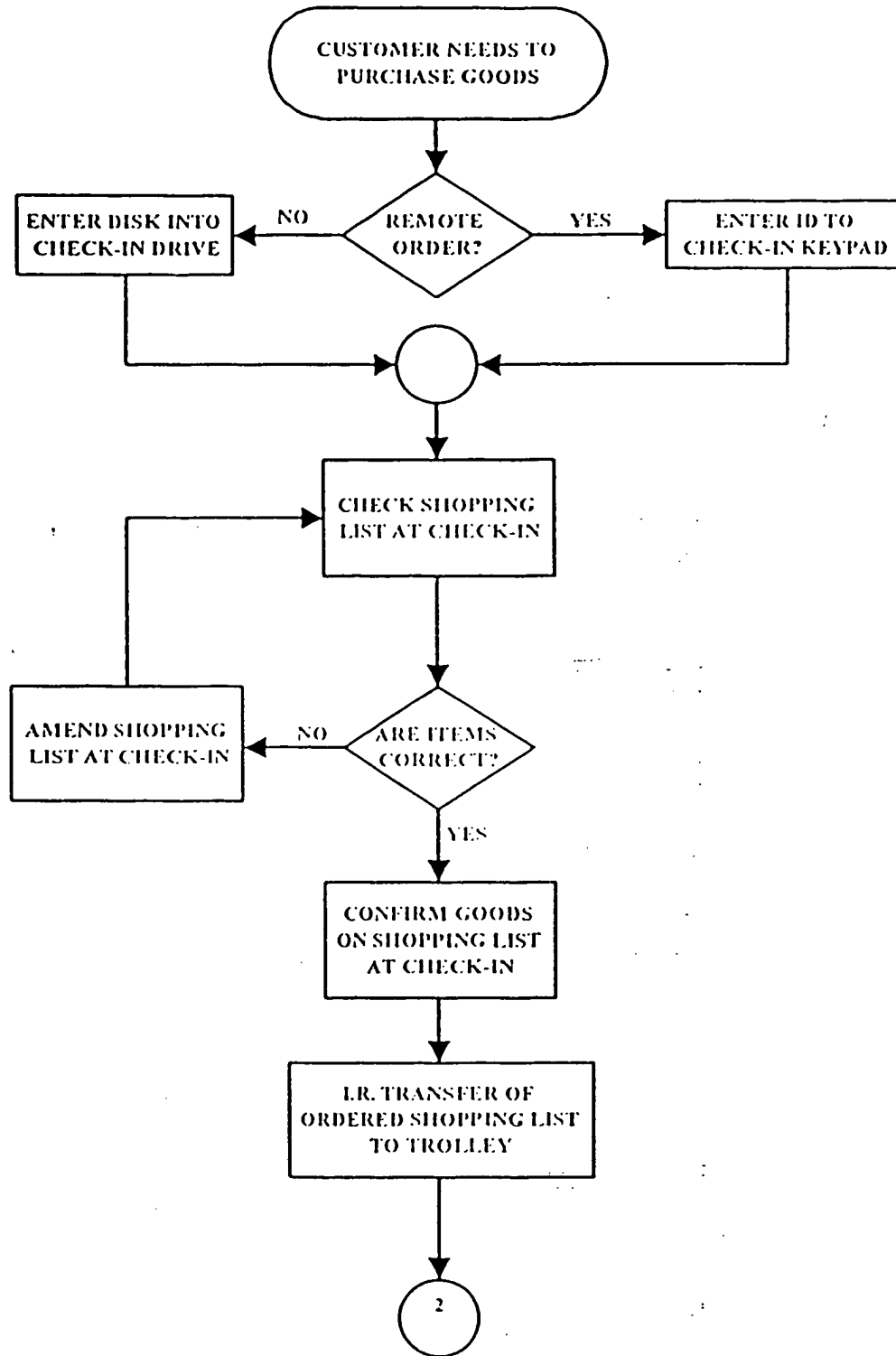


Fig 5(a)

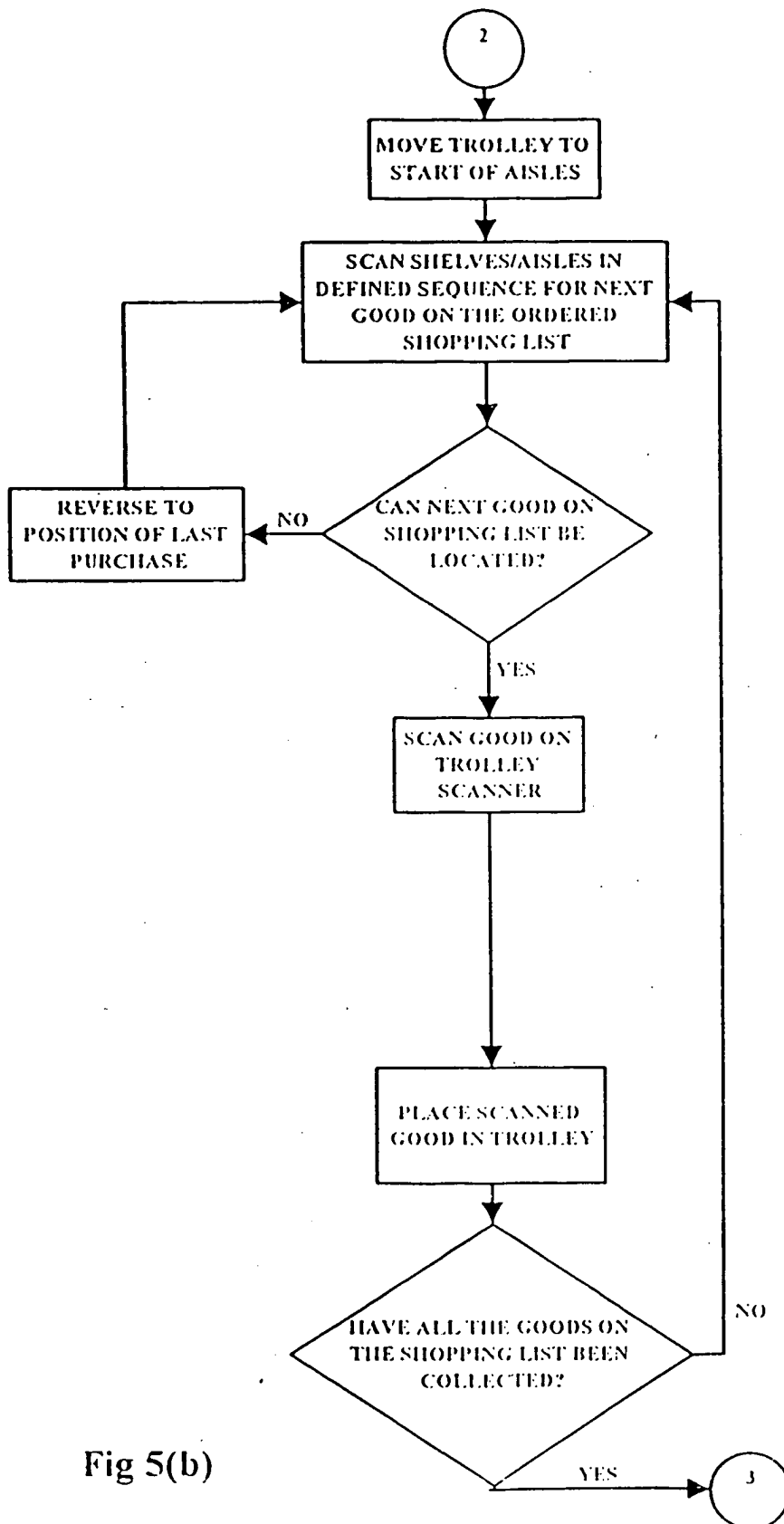


Fig 5(b)

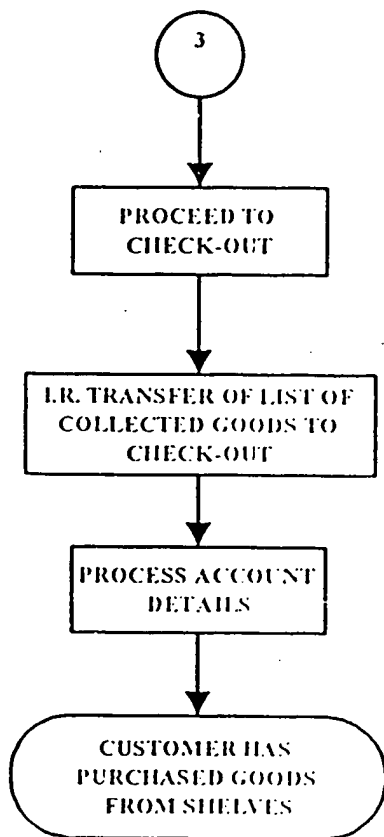


Fig 5(c)

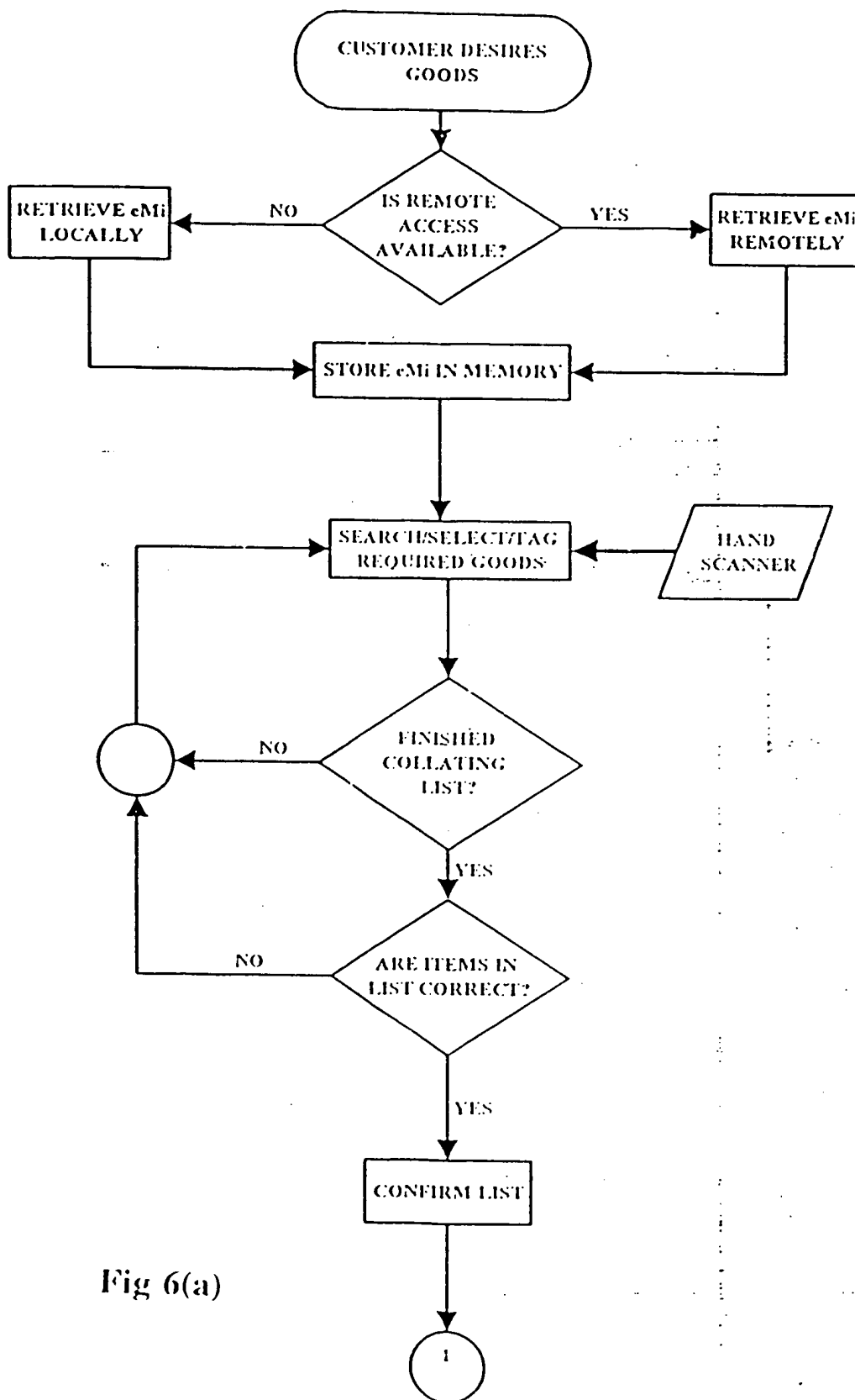


Fig 6(a)

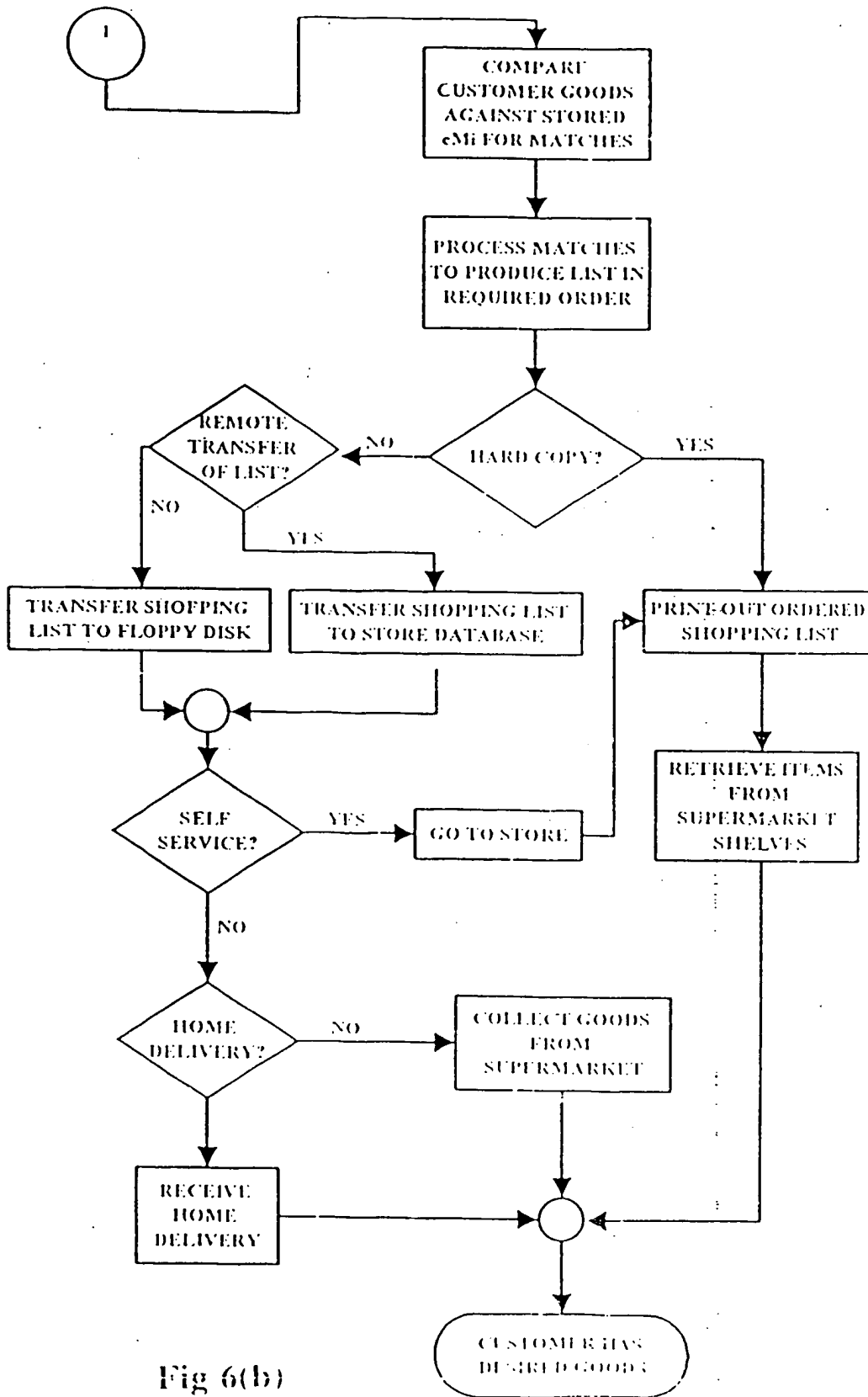


Fig 6(b)

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